

What is claimed is:

1. A chassis for holding telecommunications cards, comprising:  
first and second horizontal surfaces and vertical sidewalls mounted to the first and second horizontal surfaces, the first horizontal surface having a first ridge positioned substantially perpendicular to a longitudinal axis of the vertical sidewalls, the first horizontal surface having a plurality of card slots extending across the first horizontal surface but not across the first ridge, the card slots being substantially parallel to the longitudinal axis of the vertical sidewalls, the second horizontal surface having a first ridge with a plurality of card slots extending across the first ridge of the second horizontal surface and substantially parallel to the plurality of card slots of the first horizontal surface.
2. The chassis of claim 1, wherein the plurality of card slots of the second surface are aligned with the plurality of card slots of the first surface.
3. The chassis of claim 1, further comprising:  
a plurality of circuit cards having a first edge and a second edge disposed between the first and second horizontal surfaces, wherein the first edge of each circuit card is positioned within a card slot of the plurality of card slots of the first horizontal surface and the second edge of each circuit card is positioned within a card slot of the plurality of card slots of the second horizontal surface.
4. The chassis of claim 3, wherein the plurality of circuit cards have circuitry configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.
5. The chassis of claim 1, wherein the first horizontal surface has one or more openings between adjacent card slots and the second horizontal surface has one or more openings on the first and second ridge between adjacent card slots.

6. A chassis for holding telecommunications cards, comprising:

first and second horizontal surfaces and vertical sidewalls mounted to the first and second horizontal surfaces, the first horizontal surface having a first portion with a plurality of card slots, the plurality of card slots extending across the first portion to an edge of the first horizontal surface and being substantially parallel to a longitudinal axis of the vertical sidewalls, the first horizontal surface also having a divider slot between adjacent card slots, the divider slot being substantially parallel to the plurality of card slots of the first horizontal surface but not extending to the edge of the first horizontal surface.

7. The chassis of claim 6, wherein the edge is defined by an intersection of a vertical portion and a horizontal portion of a first ridge of the first horizontal surface.

8. The chassis of claim 6, wherein the second horizontal surface has a plurality of card slots and a divider slot between adjacent card slots of the second horizontal surface.

9. The chassis of claim 6 further comprising a divider wall positioned between the first horizontal surface and the second horizontal surface, the divider wall having an edge positioned within the divider slot of the first horizontal surface.

10. The chassis of claim 6, wherein the first and second horizontal surfaces are a mesh material.

11. The chassis of claim 6, further comprising:

a plurality of circuit cards having a first edge and a second edge disposed between the first and second horizontal surfaces, wherein the first edge of each circuit card is positioned within one of the card slots of the plurality of card slots of the first horizontal surface.

12. The chassis of claim 11, wherein the plurality of circuit cards have circuitry configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.

13. A telecommunications module, comprising:
  - a circuit board having a first edge;
  - a fiber optic cable connector mounted to the circuit board along the first edge, the fiber optic cable connector having a connection axis forming an angle with the first edge and at least a portion of the fiber optic cable connector extending beyond the first edge;
  - a faceplate mounted to the circuit board, the faceplate having a first portion substantially parallel to the first edge, a second portion substantially parallel to the connection axis of the fiber optic cable connector, and a third portion substantially perpendicular to the connection axis of the fiber optic cable connector; and
  - circuitry mounted to the circuit board for converting electrical signals to optical signals or optical signals to electrical signals.
14. The telecommunications module of claim 13, wherein the faceplate includes a mounting arm extending from the second portion or the third portion to the circuit board.
15. The telecommunications module of claim 14, wherein the faceplate further includes a second mounting arm extending from the first portion to the circuit board.
16. The telecommunications module of claim 13, wherein the third portion has an aperture, the module further comprising a fiber optic cable received by the fiber optic cable connector through the aperture.
17. The telecommunications module of claim 13, wherein the second portion interconnects the first portion to the third portion.
18. The telecommunications module of claim 13, wherein the circuitry is configured to convert electrical signals of a first data rate or a second data rate to optical signals and to convert optical signals to electrical signals of a first data rate or a second data rate.

19. A telecommunications module, comprising:  
a circuit board containing circuitry for transferring signals, the circuit board having a first edge;  
a fiber optic cable connector mounted to the circuit board along the first edge, the fiber optic cable connector having a connection axis forming an angle with the first edge;  
a shell including first and second sidewalls separated by first and second horizontal surfaces and by a faceplate, wherein the circuit board and the fiber optic cable connector are mounted to the shell between the first and second sidewalls and between the first and second horizontal surfaces, and wherein the faceplate has a first portion substantially parallel to the first edge of the circuit board, a second portion substantially parallel to the connection axis of the fiber optic cable connector, and a third portion substantially perpendicular to the connection axis of the fiber optic cable connector and wherein the first and second sidewalls abut the first portion, second portion, and third portion of the faceplate; and  
a connector mounted to the printed circuit board and extending beyond the shell.
20. The telecommunications module of claim 19, wherein the third portion has an aperture, the module further comprising a fiber optic cable received by the fiber optic cable connector through the aperture.
21. The telecommunications module of claim 19, wherein the second portion interconnects the first portion to the third portion.
22. The telecommunications module of claim 19, wherein the shell further comprises a vertical surface opposite the faceplate and the circuit board is disposed between the faceplate and the second vertical surface with the second vertical surface including an aperture, and wherein the connector extends through the aperture of the second vertical surface.
23. The telecommunications module of claim 19, wherein the circuitry is configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.

24. A chassis for holding telecommunications modules, comprising:  
 first and second horizontal surfaces;  
 vertical sidewalls mounted to the first and second horizontal surfaces; and  
 a first cover surface substantially perpendicular to the vertical sidewalls and  
 between the first and second horizontal surfaces, wherein the first cover surface has a  
 first substantially vertical portion, a second portion angled with respect to the first  
 substantially vertical portion, and a third portion angled with respect to the first  
 substantially vertical first portion and substantially perpendicular to the second  
 portion.
25. The chassis of claim 24, wherein the vertical sidewalls abut the first portion,  
 second portion, and third portion of the first cover surface.
26. The chassis of claim 24, further comprising:  
 one or more modules mounted within the first and second horizontal surfaces  
 and the vertical sidewalls, the one or more modules having a faceplate having a first  
 substantially vertical portion, a second portion angled with respect to the first  
 substantially vertical portion, and a third portion angled with respect to the first  
 substantially vertical portion and substantially perpendicular to the second portion.
27. The chassis of claim 26, wherein the first substantially vertical portion of the  
 one or more modules is flush with the first substantially vertical portion of the first  
 cover surface, the second portion of the one or more modules is flush with the second  
 portion of the first cover surface, and the third portion of the one or more modules is  
 flush with the third portion of the first cover surface.
28. The chassis of claim 27, wherein the one or more modules contain circuitry  
 configured to convert electrical signals to optical signals and to convert optical signals  
 to electrical signals.

29. A chassis for holding telecommunications modules, comprising:  
first and second vertical sidewalls;  
first and second horizontal surfaces mounted to the first and second vertical sidewalls; and  
a first baffle surface disposed between the first and second vertical sidewalls, the first baffle surface being substantially perpendicular to the first and second vertical sidewalls and angled with respect to the first and second horizontal surfaces.
30. The chassis of claim 29, further comprising a cable guide disposed between the first and second vertical sidewalls, the cable guide including radius limiters.
31. The chassis of claim 29, wherein the first baffle surface is a solid material, the chassis further comprising a second baffle surface of mesh material disposed between the first and second vertical sidewalls, the second baffle surface being substantially perpendicular to the first and second vertical sidewalls and angled with respect to the first and second horizontal surfaces and the first baffle surface.
32. The chassis of claim 31, further comprising a third baffle surface of mesh material disposed adjacently to the second baffle surface with a separation existing between the second and third baffle surfaces.
33. The chassis of claim 29, wherein the first baffle surface has a lip including a plurality of card slots.
34. The chassis of claim 33, further comprising:  
a plurality of modules disposed between the first and second horizontal surfaces and the first and second vertical surfaces, the plurality of modules having edges disposed within the card slots of the lip of the first baffle surface.
35. The chassis of claim 34, wherein the plurality of modules contains circuitry configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.

36. A chassis for holding telecommunications modules, comprising:  
first and second horizontal surfaces and vertical sidewalls mounted to the first and second horizontal surfaces;  
a cable guide mounted to the first horizontal surface or the first and second vertical sidewalls, the cable guide having a horizontal portion, a vertical portion, and a plurality of cable slots; and  
a plurality of radius limiters disposed within the cable guide with each radius limiter adjacent to at least one of the plurality of cable slots.
37. The chassis of claim 36, further comprising a cable guide cover mounted to the cable guide.
38. The chassis of claim 36, further comprising a plurality of modules disposed between the first and second horizontal surfaces and the vertical sidewalls, the plurality of modules having a fiber cable connector aligned with the plurality of cable slots and having a faceplate with at least one portion that is substantially vertical, the faceplate abutting the first and second horizontal surfaces, wherein the cable guide is mounted such that a separation exists between the faceplate of the plurality of modules and the cable guide and between at least a portion of the first horizontal surface and the cable guide.
39. The chassis of claim 38, further comprising:  
a fiber optic cable engaged by the fiber cable connector of one of the plurality of modules, the fiber optic cable being positioned within one of the cable slots of the plurality and being curved over one of the radius limiters of the plurality.
40. The chassis of claim 38, wherein the plurality of modules have circuitry configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.

41. A telecommunications module, comprising:  
a circuit board containing circuitry for transferring signals, the circuit board having a first edge with a first portion, a second portion, and a third portion;  
a fiber optic cable connector mounted to the circuit board along the second portion, the fiber optic cable connector having a connector axis perpendicular to the second portion, the second portion being angled with respect to the first portion and the third portion, the second portion interconnecting the first portion to the third portion, the first portion and the third portion being parallel but within a different spatial plane.
42. The telecommunications module of claim 41, further comprising:  
a faceplate mounted to the circuit board, the faceplate having a first portion parallel to and aligned with the first portion of the circuit card, a second portion parallel to and aligned with the second portion of the circuit card, and a third portion parallel to and aligned with the third portion.
43. The telecommunications module of claim 42, wherein the second portion of the faceplate has an aperture, the module further comprising a fiber optic cable received by the fiber optic cable connector through the aperture.
44. The telecommunications module of claim 42, further comprising a first mounting arm extending from the first portion to the printed circuit board and a second mounting arm extending from the third portion to the printed circuit board.
45. The telecommunications module of claim 42, wherein the circuitry is configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.



46. A telecommunications module comprising:  
an optical connector; and  
circuitry connected to the optical connector, the circuitry being configured to selectively convert electrical signals having a first data rate or electrical signals having a second rate different than the first rate to optical signals.
47. The telecommunications module of claim 46, wherein the circuitry includes a reference signal generator configured to provide at least two reference signals having different frequencies, wherein a first of the at least two frequencies corresponds to the first data rate and a second of the at least two frequencies corresponds to the second data rate.
48. The telecommunications module of claim 47, wherein the reference signal generator includes a first oscillator of the first of the at least two frequencies and includes a second oscillator of the second of the at least two frequencies.
49. The telecommunications module of claim 47, wherein the reference signal generator includes a first oscillator electrically connected to a first phase locked loop, the first phase locked loop providing an output of the first of the at least two frequencies, the reference signal generator further comprising a second phase locked loop, the second phase locked loop providing an output of the second of the at least two frequencies.
50. The telecommunications module of claim 46, further comprising:  
a switch connected to the reference signal generator, the switch enabling the reference signal generator to provide the first frequency when in a first position and enabling the reference signal generator to provide the second frequency when in a second position..
51. The telecommunications module of claim 46, further comprising:  
a printed circuit board, wherein the fiber optic cable connector and circuitry is mounted to the printed circuit board; and  
a faceplate mounted to the printed circuit board, the faceplate having an aperture surrounding the fiber optic cable connector.

52. A telecommunications module comprising:  
an optical connector; and  
circuitry connected to the optical connector, the circuitry being configured to selectively convert optical signals to electrical signals having a first data rate or to electrical signals having a second data rate different than the first data rate.
53. The telecommunications module of claim 52, wherein the circuitry includes a first recovery circuit configured to recover clock and data information for a first data rate from an intermediate electrical signal created by the circuitry, and wherein the circuitry includes a second recovery circuit configured to recover clock and data information for a second data rate different than the first data rate from the intermediate electrical signal.
54. The telecommunications module of claim 53, further comprising:  
a switch connected to the first and second recovery circuits, the switch enabling the first recovery circuit to operate when in a first position and enabling the second recovery circuit to operate when in a second position.
55. The telecommunications module of claim 52, further comprising:  
a printed circuit board, wherein the fiber optic cable connector and circuitry is mounted to the printed circuit board; and  
a faceplate mounted to the printed circuit board, the faceplate having an aperture surrounding the fiber optic cable connector.

56. A chassis for holding telecommunications modules, comprising:  
 first and second horizontal surfaces;  
 vertical sidewalls mounted to the first and second horizontal surfaces;  
 a first cover surface substantially perpendicular to the vertical sidewalls and between the first and second horizontal surfaces, wherein the first cover surface has a first substantially vertical portion, a second portion angled with respect to the first portion, and a third substantially vertical portion, wherein the second portion interconnects the first portion and the third portion; and

a second cover surface spaced horizontally from the first cover surface and being substantially perpendicular to the vertical sidewalls and between the first and second horizontal surfaces, wherein the second cover surface has a first substantially vertical portion, a second portion angled with respect to the first portion, and a third substantially vertical portion, wherein the second portion interconnects the first portion and the third portion, and wherein an opening to the interior of the chassis is defined by the first cover surface, second cover surface, and first and second horizontal surfaces.

57. The chassis of claim 56, wherein the vertical sidewalls abut the first portion, second portion, and third portion.

58. The chassis of claim 56 further comprising:

one or more modules mounted within the first and second horizontal surfaces and the vertical sidewalls, the one or more modules having a faceplate having a first substantially vertical portion, a second portion angled with respect to the first substantially vertical portion, and a third substantially vertical portion, wherein the second portion of the faceplate interconnects the first portion and the third portion.

59. The chassis of claim 58, wherein the first substantially vertical portion of the one or more modules is flush with the first substantially vertical portion of the first cover surface, the second portion of the one or more modules is flush with the second portion of the first cover surface, and the third portion of the one or more modules is flush with the third portion of the first cover surface.

60. The chassis of claim 56, wherein the one or more modules contain circuitry configured to convert electrical signals to optical signals and to convert optical signals to electrical signals.

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61. A chassis for holding telecommunication modules, comprising:

a first horizontal surface and vertical sidewalls mounted to the first horizontal surface, the first horizontal surface having a first ridge positioned substantially perpendicular to a longitudinal axis of the vertical sidewalls, the first horizontal surface having a second ridge positioned substantially parallel to but spaced from the first ridge, the first horizontal surface having a plurality of card slots extending across at least a portion of the first horizontal surface, the card slots being substantially parallel to a longitudinal axis of the vertical sidewalls, the first and second ridges having at least one opening between adjacent card slots; and

a plurality of modules positioned between the vertical sidewalls and on the first horizontal surface, the plurality of modules having an edge disposed in the card slot of the first horizontal surface, the plurality of modules having circuitry for converting electrical signals to optical or optical signals to electrical signals, the circuitry including an optics transceiver positioned over the first ridge and a DC-DC converter positioned over the second ridge.

62. The chassis of claim 61, wherein the first horizontal surface has a plurality of openings between the first and second ridge, and wherein the plurality of modules further include a shielding cage enclosing at least a portion of the circuitry, the shielding cage being positioned between the first and second ridges.

63. The chassis of claim 61, further comprising a second horizontal surface mounted to the vertical sidewalls, the second horizontal surface including a plurality of card slots and openings between adjacent card slots.

64. A chassis for holding telecommunications modules, comprising:  
a horizontal surface having a width of a first dimension;  
first and second vertical walls mounted to horizontal surface, the first and second vertical sidewalls forming spatial planes parallel to the first dimension; and  
a horizontal channel extending between the first and second vertical sidewalls and spaced from the horizontal surface, the horizontal channel having a plurality of horizontal card slots extending parallel to the spatial planes of the vertical sidewalls, the horizontal channel having a width of the first dimension less than the width of the first dimension of the horizontal surface.
65. The chassis of claim 64, further comprising:  
a plurality of vertical divider walls positioned on the horizontal surface and between the first and second vertical walls, the vertical divider walls having an aperture, wherein the horizontal channel is disposed within the apertures of the vertical divider walls.
66. The chassis of claim 64, wherein the horizontal surface has a plurality of card slots in vertical alignment with the plurality of card slots of the horizontal channel
67. The chassis of claim 64, wherein the horizontal channel is U-shaped.
68. The chassis of claim 64, further comprising a plurality of modules having a top edge disposed within the card slots of the channel.
69. The chassis of claim 68, wherein the modules include circuitry configured to convert electrical signals to optical signals and convert optical signals to electrical signals.
70. The chassis of claim 64 further comprising a baffle surface disposed between the first and second vertical walls such that the horizontal channel lies between the baffle surface and the horizontal surface, the baffle surface forming an angle with respect to the horizontal surface.

71. The chassis of claim 64, further comprising a cable guide disposed between the first and second vertical walls, the cable guide including a horizontal surface and a plurality of radius limiters disposed on the horizontal surface.

72. A chassis for holding telecommunications modules, comprising:  
 a horizontal surface;  
 first and second vertical walls mounted to the horizontal surface;  
 a first baffle surface disposed between the first and second vertical walls, the baffle surface forming an angle relative to the horizontal surface; and  
 one or more vertical divider walls disposed between the first and second vertical walls, the one or more vertical divider walls having a first edge parallel to the baffle surface and a second edge parallel to the horizontal surface.
73. The chassis of claim 72, further comprising:  
 a cable guide disposed between the first and second vertical walls, the cable guide including a horizontal surface and a plurality of radius limiters disposed on the horizontal surface of the cable guide.
74. The chassis of claim 72, wherein the one or more vertical divider walls further include a third vertical edge, a fourth edge angled with respect to the third edge, and a fifth vertical edge, wherein the third edge interconnects the second edge and the fourth edge, and wherein the fifth vertical edge interconnects the fourth edge and the first edge.
75. The chassis of claim 74, further comprising a vertical backplane disposed between the first and second vertical walls, and wherein the one or more divider walls further include a sixth vertical edge that abuts the vertical backplane.
76. The chassis of claim 74, further including a plurality of modules disposed on the horizontal surface between the first and second vertical walls, the plurality of modules having a faceplate with a first vertical portion that is aligned and flush with the third edge of the one or more vertical divider walls, a second portion that is angled with respect to the first vertical portion and that is aligned and flush with the fourth edge of the one or more vertical divider walls, and a third vertical portion that is within a different spatial plane from the first vertical portion and that is aligned and flush with the fifth vertical edge of the vertical divider walls.